

# **EXHIBIT D**

**(part 1 of 2 due to file size)**

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Name of Applicant: Lawrence G. Hopkins

Application No: 10/806,775

Filing Date: 03/22/2004

Title of Invention: FAN ARRAY FAN SECTION  
IN AIR-HANDLING SYSTEMS

Group Art Unit No: Unknown

Examiner: Unknown

Current status and location: Published in the U.S. on Sept. 23, 2004 as Publication  
No. U.S. 2004/0185771 A1; Current location of file is unknown

I HEREBY CERTIFY THAT THIS PAPER OR FEE IS BEING  
DEPOSITED WITH THE UNITED STATES POSTAL  
SERVICE AS FIRST CLASS MAIL UNDER 37 CFR 1.8 ON  
THE DATE INDICATED BELOW AND IS ADDRESSED TO:  
ATTN: OFFICE OF PETITIONS, ASSISTANT  
COMMISSIONER FOR PATENTS, PO Box 1450, Alexandria  
VA22313-1450,

DATE OF DEPOSIT: November 19, 2004

Molly D. McKay, Reg. 35 609

TYPED OR PRINTED NAME OF PERSON MAILING

*Molly D. McKay*  
SIGNATURE OF PERSON MAILING FEE OR PAPER

**PROTEST UNDER 37 CFR 1.291(a)**

ATTN: Office of Petitions  
Assistant Commissioner for Patents  
PO Box 1450  
Alexandria VA 22313-1450

Dear Sirs:

Enclosed is a self addressed postcard for an acknowledgement by the Patent  
Office that this protest has been received.

This protest under 37 CFR 1.291(a) is being filed on the above referenced  
patent application, serial number 10/806,775. Attached is form PTO-1449 with a  
listing of the pertinent references provided with this protest. Copies of each of the  
five listed references are also attached. These five references are being submitted  
to show that the invention which is the subject of U.S. patent application no.  
10/806,775 was, under 35 U.S.C. 102(b), in public use or on sale in this country

more than one year prior to the date of the application for patent in the United States. The filing date for U.S. patent application no. 10/806,775 was the filing date of provisional application no. 60/456,413, filed on March 20, 2003. Thus, the critical date for purposes of the one year prior use date is March 20 2002. A concise explanation of the relevance of each of the five listed references appears below.

The first reference is a marketing brochure entitled RL Series Rooftop Conditioners published by AAON and bearing a publication date on the outside back cover of 09/01. Referring to the fold out illustration in the center of the brochure, there are pictured multiple fans in the blower section and optional multiple exhaust and return fans.

The second reference is a letter from AAON's Marketing Manager, Jim Parro, addressed to All AAON Sales Representative dated October 1, 2001 enclosing copies of the new RL Series literature.

The third reference is RL Series Engineering Specifications and Selection Procedures published by AAON and bearing a publication date on the outside back cover of 1-03. Although this date is beyond the critical date of March 20 2002, this document is being included to provide a more complete description of the RL Series Units. This document shows the detailed engineering information on these units. Specifically on page IV, under the column entitled Feature Number, under the heading Supply Air Options, A Feature – S/A Blower Config., there are included 1, 2, 3, or 4 blowers. Also, beginning with the second drawing that follows page 43,

i.e. the drawing bearing Unit Tag of RTU#2 is the lower right hand corner, units employing multiple fans are shown.

The fourth reference is AAON, Inc. invoice number 265184 dated 02/28/02 showing the sale of two of AAON's RL Series units to Weirton Medical Center in Weirton, WV.

The fifth reference is the order form and associated documents relating to the sale of RL Series units to Weirton Medical Center, i.e. the sale for which the fourth reference described above was issued. The order was entered on November 14, 2001, and that date is stamped on the first page of the fifth reference. The second page of this fifth reference bears the heading "Worksheet" and shows the features included on the RL Units that were sold to Weirton Medical Center. Specifically on line Q, feature 5A 4 Blowers are listed for S/A Blower Configuration of the RL Units that were being sold. This same information appears on the third and fourth pages of this reference. The fifth page of this reference is a drawing of the RL Units that were sold and which shows 4 supply air fan motors being included in each unit.

Respectfully submitted,



---

Molly D. McKay, Reg. No. 35,609  
3207 East 22nd Street  
Tulsa, Oklahoma 74114-1823  
(918) 742-5900  
Attorney for AAON

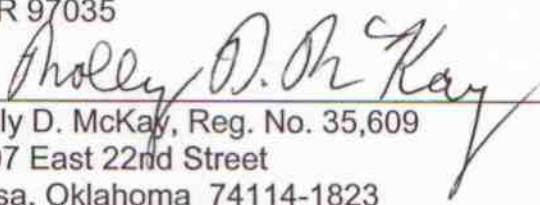
Enclosures: self addressed postcard  
PTO-1449 with 5 references  
Proof of Service on Applicant's Attorney



**CERTIFICATE OF SERVICE**

A copy of this Protest with attachments was served according to 37 CFR 1.291(a)(2) and 37 CFR 1.248(a)(4) on the attorney for Applicant Lawrence G. Hopkins via U.S. first class mail on November 19, 2004 at the following address:

Law Office of Karen Dana Oster, LLC  
PMB 1020  
15450 SW Boones Ferry Road #9  
Lake Oswego, OR 97035

  
Molly D. McKay, Reg. No. 35,609  
3207 East 22nd Street  
Tulsa, Oklahoma 74114-1823  
(918) 742-5900  
Attorney for AAON

[F:\Linda's Docs\AAON\Protest]

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

**Complete if Known**

Application Number	10/806,775
Filing Date	03/22/2004
First Named Inventor	Hopkins, Lawrence G.
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	Unknown

*(Use as many sheets as necessary)*

Sheet	1	of	2
-------	---	----	---

[illegible][illegible]

Date Considered

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

PTO/SB/08b (08-03)

Approved for use through 06/30/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 2 of 2

**Complete if Known**

Application Number	10/806,775
Filing Date	03/22/2004
First Named Inventor	Hopkins, Lawrence G.
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	Unknown

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		AAON, RL Series Rooftop Conditioners, 09/01	
		Jim Parro (Marketing Manager for AAON), New Promotional Literature The RL Series,	
		AAON RL Series 45 to 230 tons Packaged Rooftop Conditioners & Air Handlers,	
		AAON, Invoice No. 265184, 2/28/02	
		AAON, Order Form and Associated Documents, 11/14/01	

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

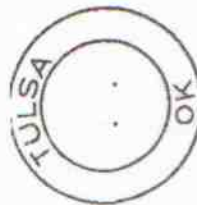


APPLICANT:  
APPLICATION NO.:  
FOR:  
LAWRENCE G. HOPKINS  
10/806,775  
FAN ARRAY FAN SECTION IN  
AIR-HANDLING SYSTEMS

The U.S. Patent and Trademark Office hereby acknowledges and has stamped hereon the date of receipt for the following items which were mailed on November 19, 2004

PROTEST  
PTO-1449 with 5 references  
Proof of Service on Applicant's Attorney

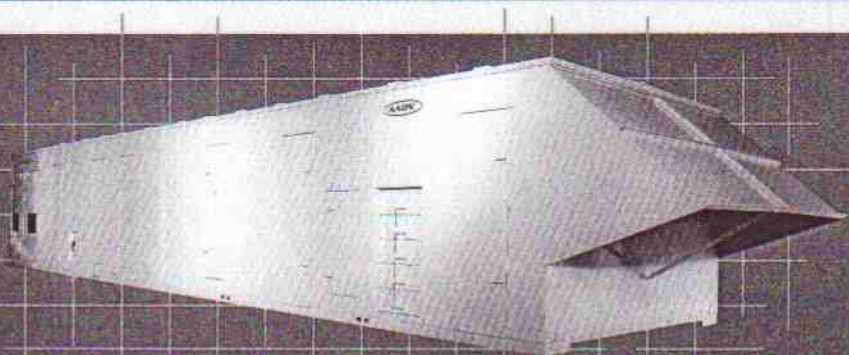
MOLLY D. MCKAY, P.C.  
MOLLY D. MCKAY  
Patent, Trademark & Copyright Attorney  
3207 East 22nd Street  
Tulsa, Oklahoma 74114-1823



MOLLY D. MCKAY, P.C.  
MOLLY D. MCKAY  
Patent, Trademark & Copyright Attorney  
3207 East 22nd Street  
Tulsa, Oklahoma 74114-1823



*Continuing a Tradition of Excellence.*



**RL** SERIES

**ROOFTOP CONDITIONERS**

Air, evaporative and water cooled

condensing from 40 to 230 tons.

Air handlers from 8,000 to 75,000 CFM.



## MEETING TODAY'S REQUIREMENTS WITH FULL FEATURED, ENERGY EFFICIENT PRODUCTS.

AAON® has recognized the increasing requirement for larger and more energy efficient packaged rooftop equipment. The RL Model Series has been designed to build upon AAON's experience as the premier supplier of rooftops.

The RL Series is available in a number of configurations to fit the exact job requirements and all the features that make AAON synonymous with meeting the customer's needs.

**Air Cooled Models.** The copper tube, aluminum fin coils are sloped to protect the coils from damage. The coils facing out have the additional protection

of a sheet of perforated metal. All are designed for at least 10°F of refrigerant subcooling. To conserve energy, condenser fans are cycled off when not required. All condenser fans are vertical discharge with direct drive motors.

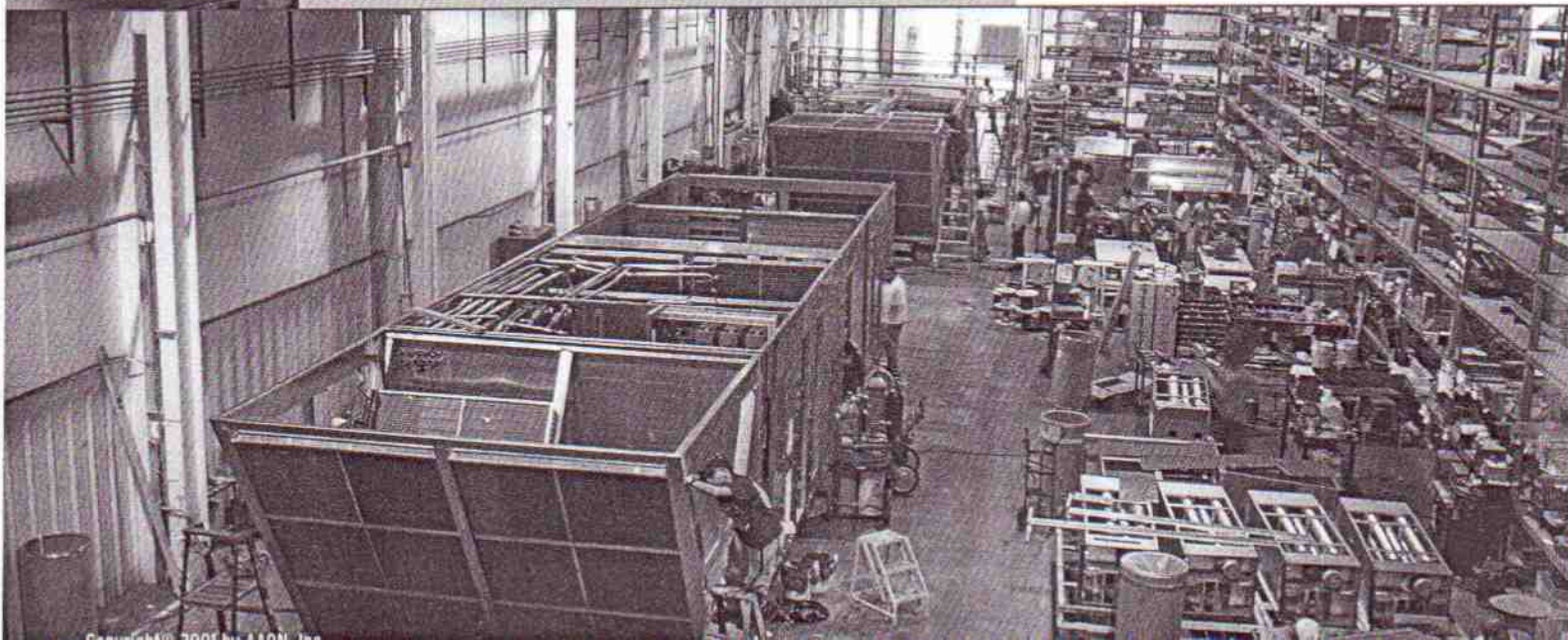
**Evaporative Condensing Models.** These models can deliver outstanding energy efficiency when compared with air cooled models. The energy savings can be 20 to 40% annually depending on the location. Any geographic location that can utilize a central chiller and cooling tower will be a valid location for this evaporative cooled RL rooftop model.

AAON again provides many exclusive features that are only obtained from others by ordering custom-built models at additional cost.

- Condenser fans are vertical discharge and direct drive, propeller type of aluminum construction.
- To maximize the energy efficiency and extend the operating temperature range, the condenser fan motors are controlled by a VFD varying the motor speed based on the cooling water temperature.
- The evaporative section interior and sump are constructed of 304 stainless steel.
- The evaporative condenser water circuit is completely factory installed including the pump and controls.
- The water circuit includes non-corrosive piping and nozzles.
- A sump water treatment system and all associated controls are completely

### Quiet Efficiency.

The backward inclined airfoil plenum fans can be selected to meet your airflow requirements with the minimum diameter and number of fans. The spring isolation of the fan assembly and blow-through design provides enhanced sound reduction in the supply airstream.





installed. This includes a monitor and controls for dissolved solids, organic dispersal and biocide, including a dispenser for each. The system also includes a controller for the blowdown cycle and the injector pumps for all three chemicals.

**Water Cooled Models.** Many installations can take advantage of the energy efficiency of a water cooled model when there is a readily accessible source of water or where cooling tower water may be available. The standard water cooled RL models include the following features:

- Individual plate type heat exchanges for each refrigerant circuit.
- Each heat exchanger is provided with a removable and cleanable type basket filter.
- The heat exchanger piping connections are made within the condensing section of the rooftop unit.

**Air Handler Models.** The RL Model can also fill the requirements when a non-compressorized unit is required. The unit will be built without a condensing section and walk-in compressor/control compartment, however, any of the other features and options are available. The base models available include the following features:

- The air handler can be supplied with a DX coil complete with thermostatic expansion valve.
- The air handler can be supplied with a chilled water coil in 4, 6 or 8 rows deep.

The unit may be specified with any of the heating options in order to provide a year-round rooftop heating and cooling installation.

## FEATURES

### Standard

- Completely factory assembled, piped and wired for a single point power connection.
- Specifically designed for outdoor application with a weather-proof cabinet.
- Cabinet construction is entirely of G90 galvanized steel and a 2000 hour salt spray paint finish.
- Double wall construction throughout with 2 inches of insulation.
- The fan wheels are single inlet airfoil type and directly driven by the motor.
- The entire fan and motor assembly is mounted on spring isolators.
- Side access doors with stainless steel hinges and full perimeter gasketing, open against air pressure. Doors are provided to the filters, blower, compressor/control compartment and other items that need periodic maintenance.
- Access doors have latches that are operable from both sides.
- Unit specific color coded wiring diagrams provided in point-to-point and ladder form.
- Diagrams are laminated in plastic and permanently affixed.
- A walk-in compartment that contains the compressors and electrical control panel.
- Multiple scroll compressors are mounted on an isolation deck for quiet and efficient part load operation.

- All damper blades are constructed for low-leakage with an extruded aluminum, hollow core, airfoil design with rubber edge and aluminum end seals.

### Optional

**Many optional design features are available to allow maximum flexibility to meet the various job conditions and applications.**

- A wide selection of economizers from simple manually adjustable to fully modulating, enthalpy controlled.
- Power exhaust and return fans are axial flow type, direct driven by the motor.
- A selection of filters from 2 inches pleated to high efficiency cartridge filters. These may also be furnished in the final filter position.
- Factory mounted and fully integrated energy recovery wheels that have been rated in accordance with ARI Standard 1060 and bear the ARI Certification symbol.
- A wide selection of electric, gas and hydronic heating options can be made.
- Smoke and firestats can be selected for the supply and/or return air.
- Marine service lights can be selected for each airstream compartment.



### Dedicated Assembly Lines and Automated Sheet Metal Fabrication.

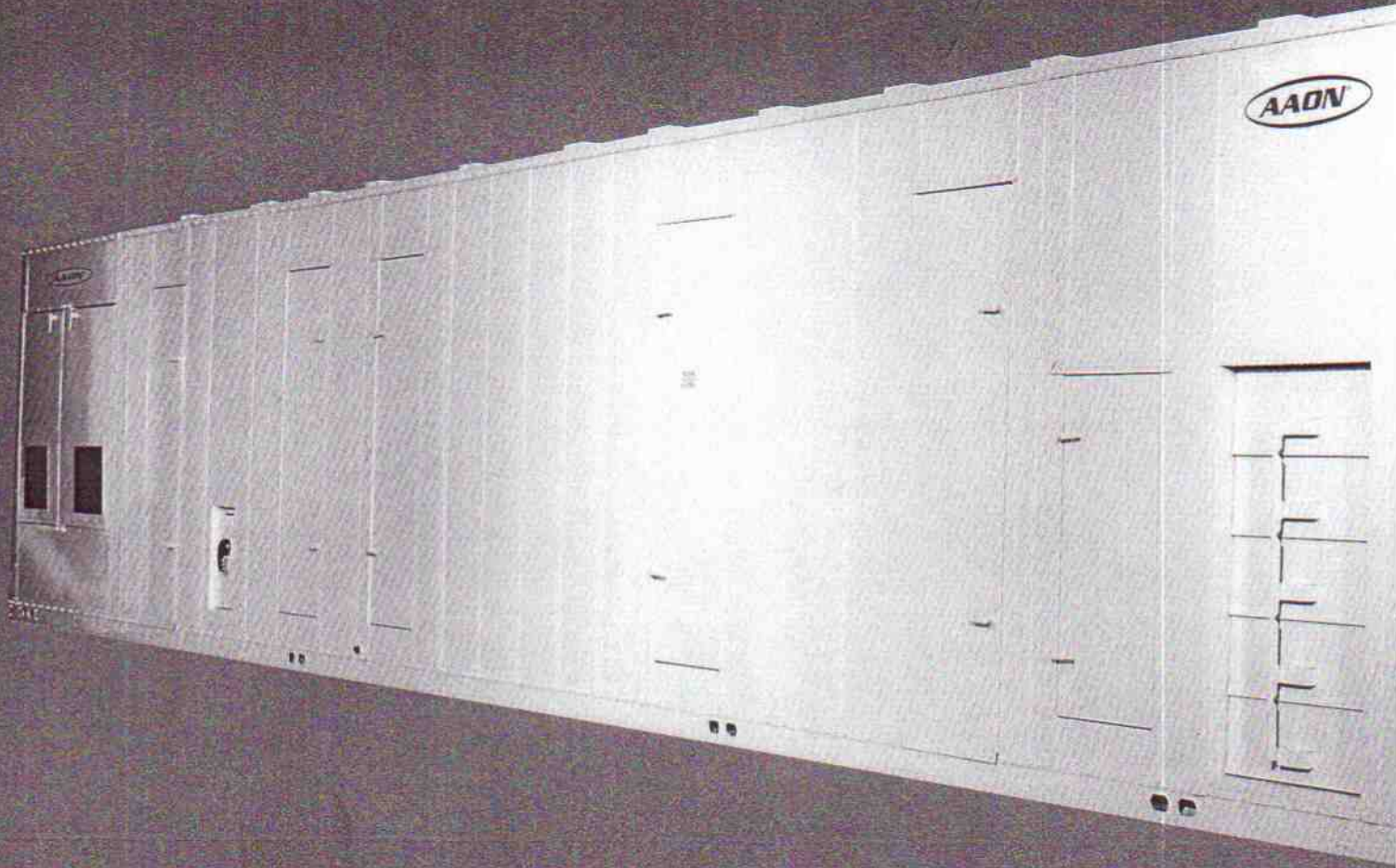
AAON has the people, experience and facility to produce the highest quality, full featured rooftop equipment.



# RL

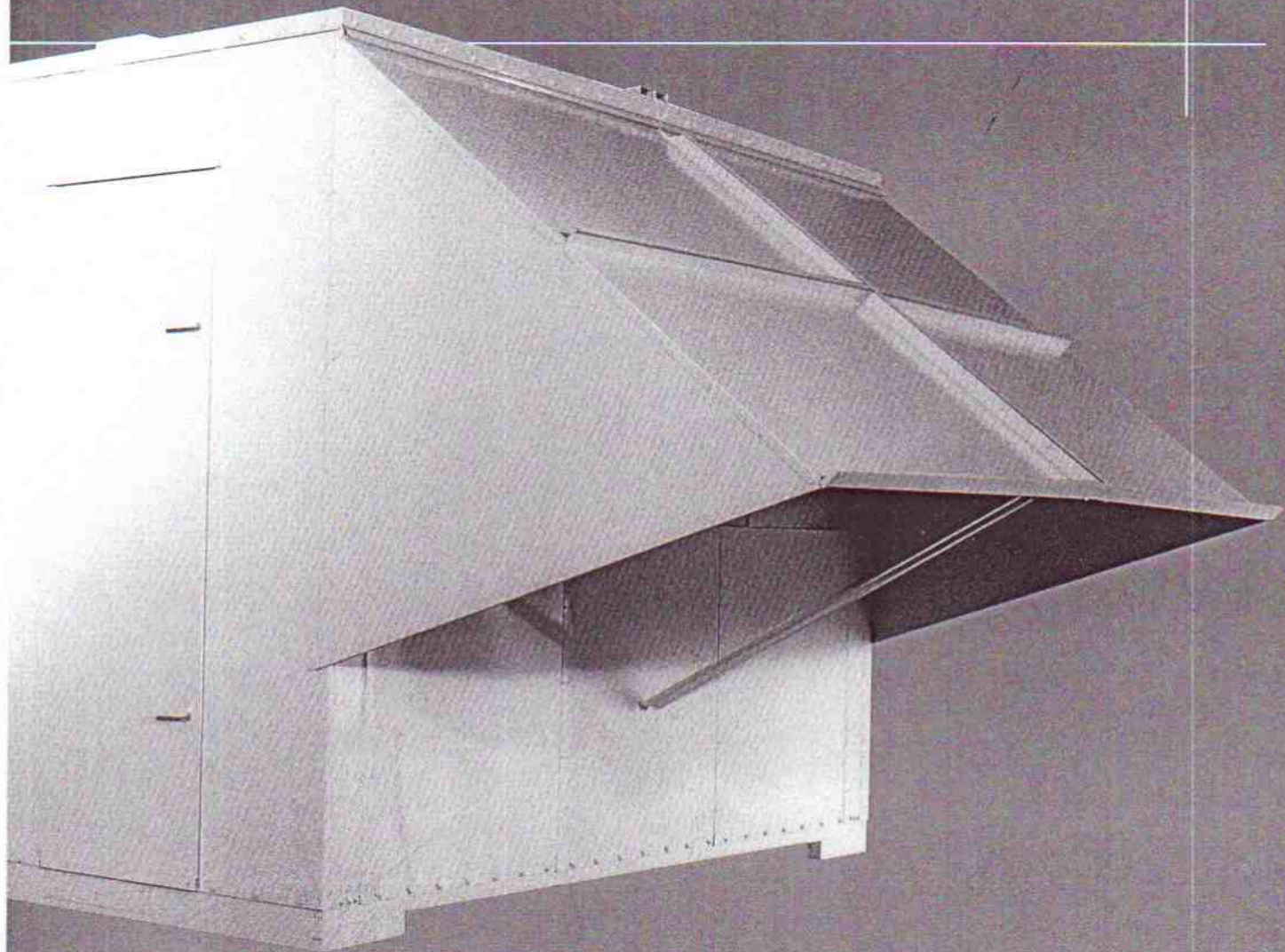
ROOFTOP CONDITIONER  
THE ULTIMATE

SERIES





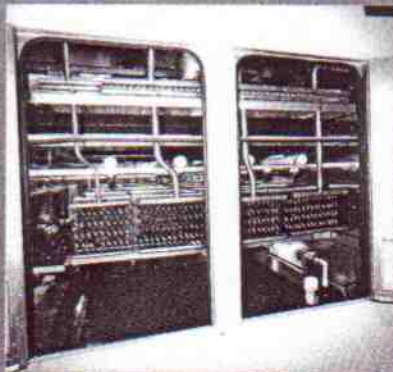
**WITH EVAPORATIVE CONDENSING.  
IN ENERGY EFFICIENCY.**





# RL

# SERIES



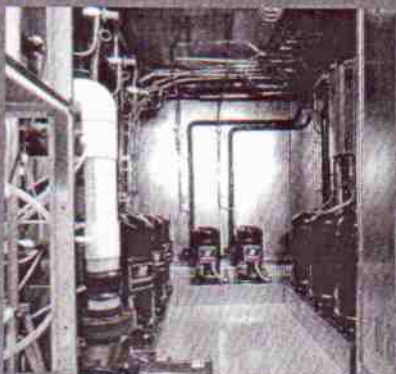
## Evaporative Condenser

The interior chamber is entirely stainless steel with individual circuits for each compressor. A desuperheater is installed above the moisture eliminators and spray nozzles and the copper tube condensers are below.



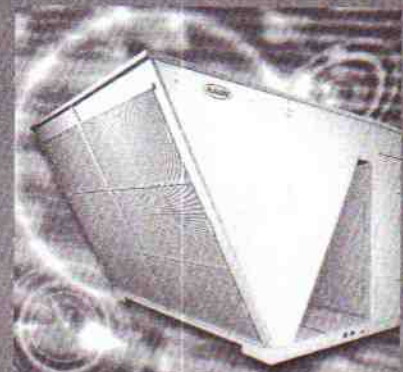
## Complete Water Treatment

To insure the proper treatment of the water system can be correctly and accurately performed, AAON furnishes a three chemical system and all associated controls, injector pumps and control components.



## Evaporative Condenser Walk-In Compartment

This is the nerve center of the equipment containing the compressors, electrical control panel, waterside pump, and the water treatment system.



## Air Cooled Condenser

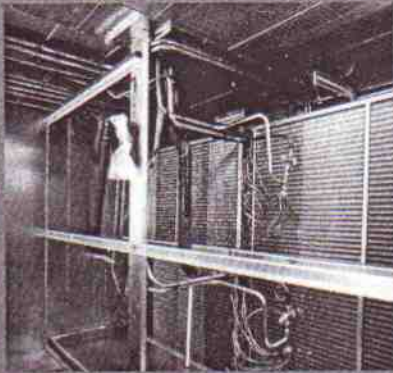
The vertical discharge propeller fans provide maximum energy efficient airflow through the sloped copper tube condenser coils.



## Air Cooled Condenser Walk-In Compartment

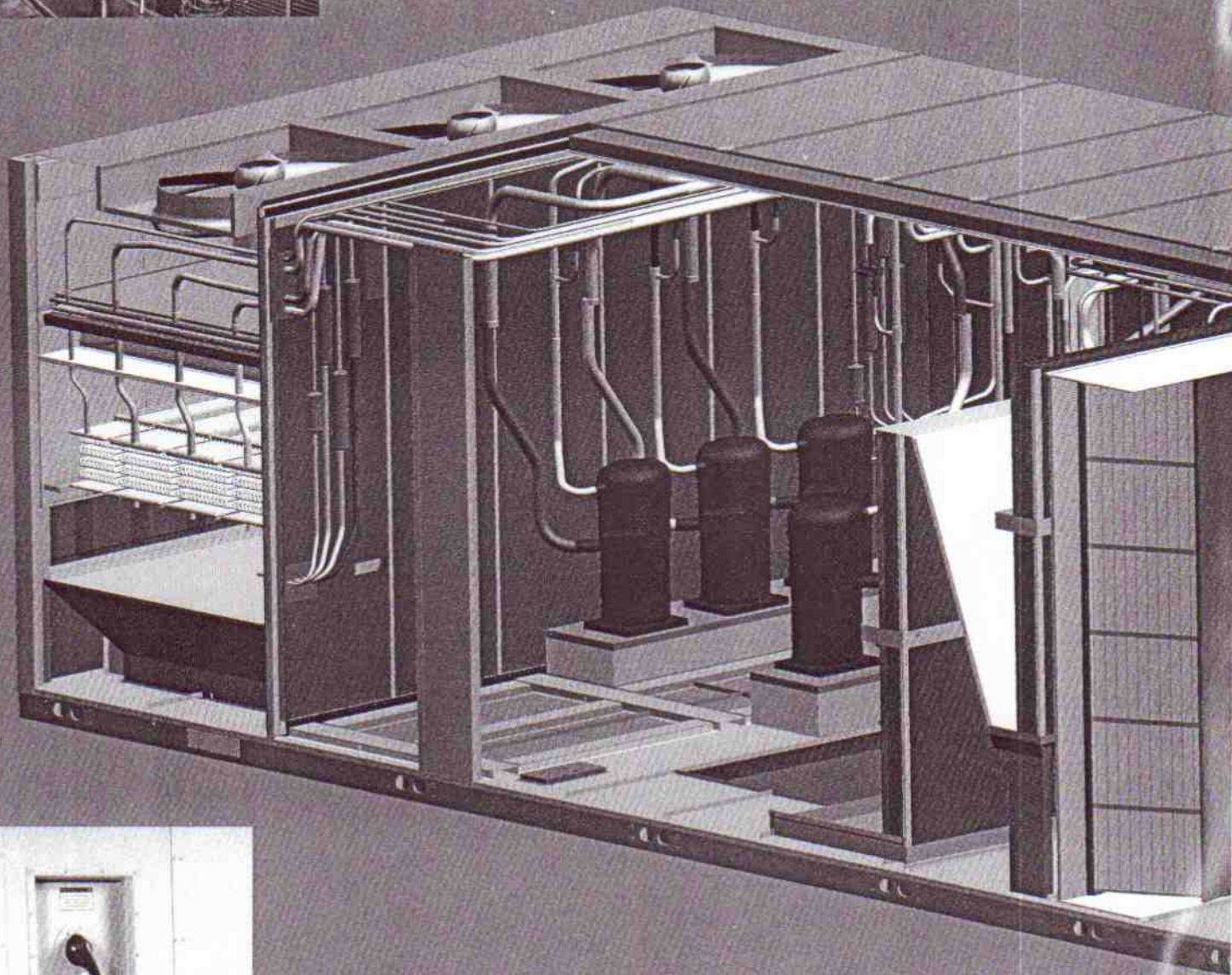
The walk-in compartment provides shelter for the maintenance and service personnel while inspecting the compressors and the electrical control panel. A fluorescent light fixture is furnished in the compartment and is controlled by a light switch at the door.





### Evaporator Coils

Each evaporator coil has a thermostatic expansion valve. Two compressors are connected to each evaporator coil. A double sloped drain pan is provided for positive drainage. Tubing is dressed and structurally supported.



### Optional Main Disconnect Switch

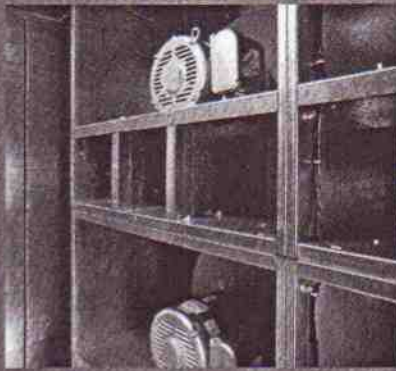
Factory installation of the disconnect switch saves the expense at the jobsite.



### Single Point Power Supply

The single point power connection is easily made through the bottom of the unit. All internal wiring and sub-circuit fusing is neatly assembled and identified.





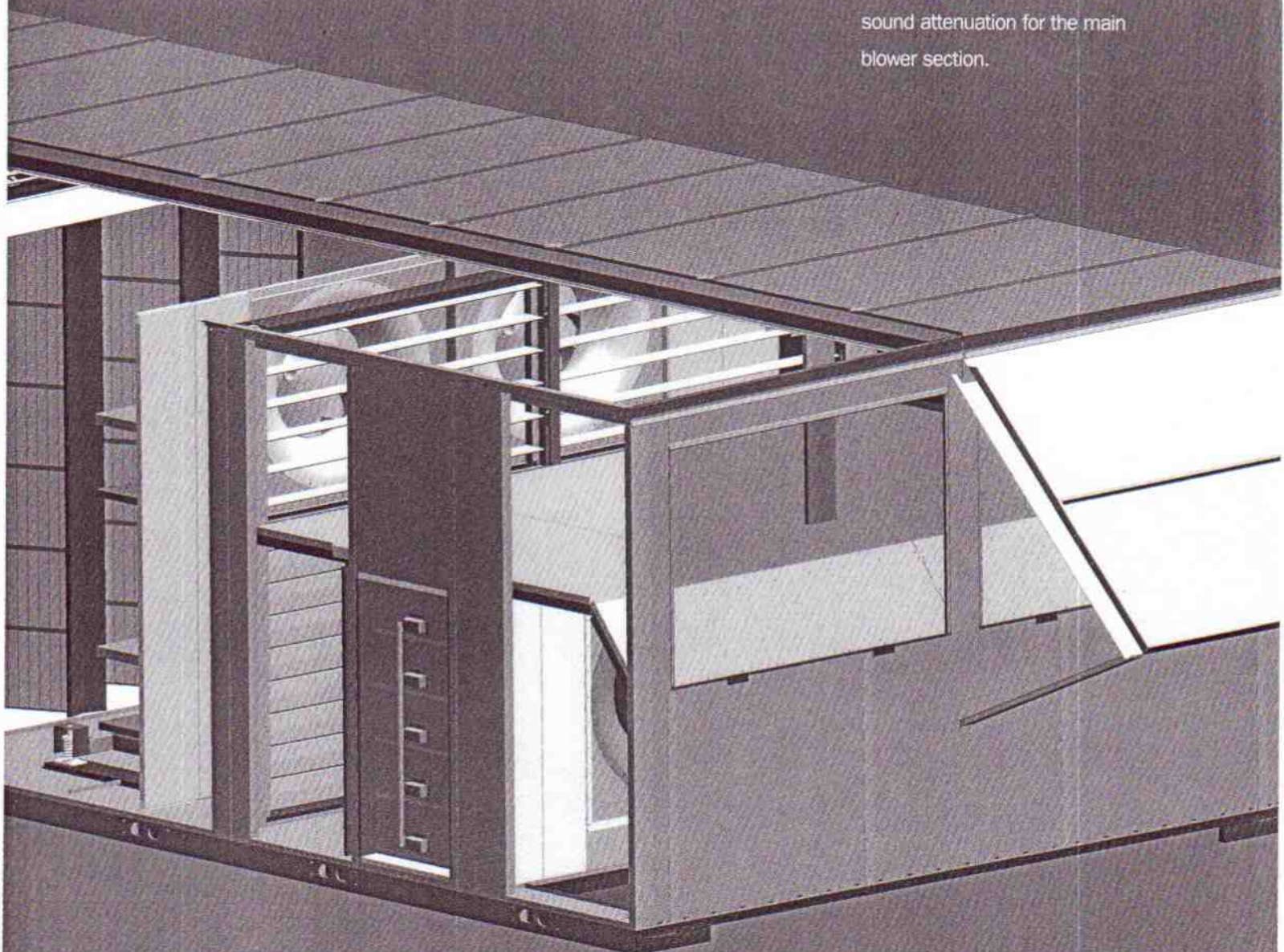
### Blower Section

Single or multiple direct drive, single inlet plenum fans with spring isolation on the entire assembly provides minimum fan diameter and sound level.

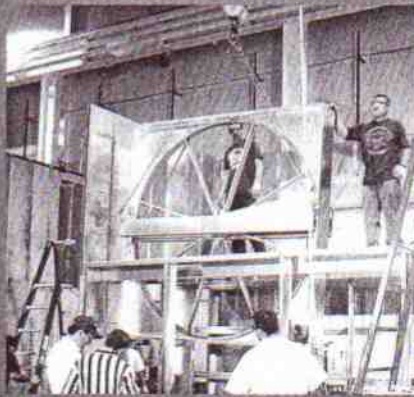


### Spring Isolators

The spring isolators provide sound attenuation for the main blower section.

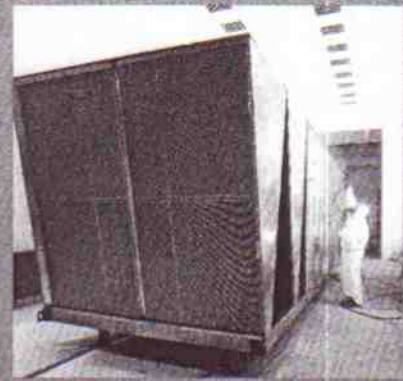






### **AAONAIRE®**

This energy recovery ventilation option can be provided in all model sizes allowing reduced equipment size and operating cost savings while lowering the humidity of the outside air being introduced into the conditioned space.



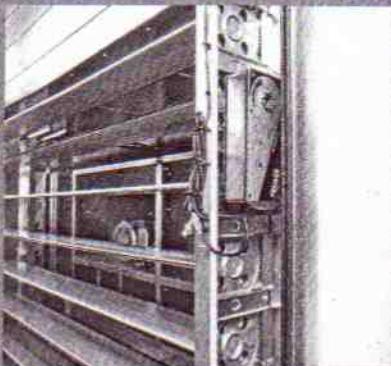
### **Painted Cabinet**

The entire unit is constructed of G90 galvanized steel. To provide additional corrosion protection and enhance the appearance, the entire unit is covered with a polyurethane paint. This finish has passed 2000 hours under the salt spray test conditions.



### **Filter Section**

Similar to all the other sections, the full height access door provides for filter maintenance. Filters are vertical and face load to make replacement easy while inside the unit.



### **Economizer**

A full line of economizer options are available. All are low leakage with extruded airfoil blades and rubber edge and aluminum end seals.



### **Optional Exhaust and Return Fans**

The power exhaust and return fans are axial flow type and directly driven by the motor.



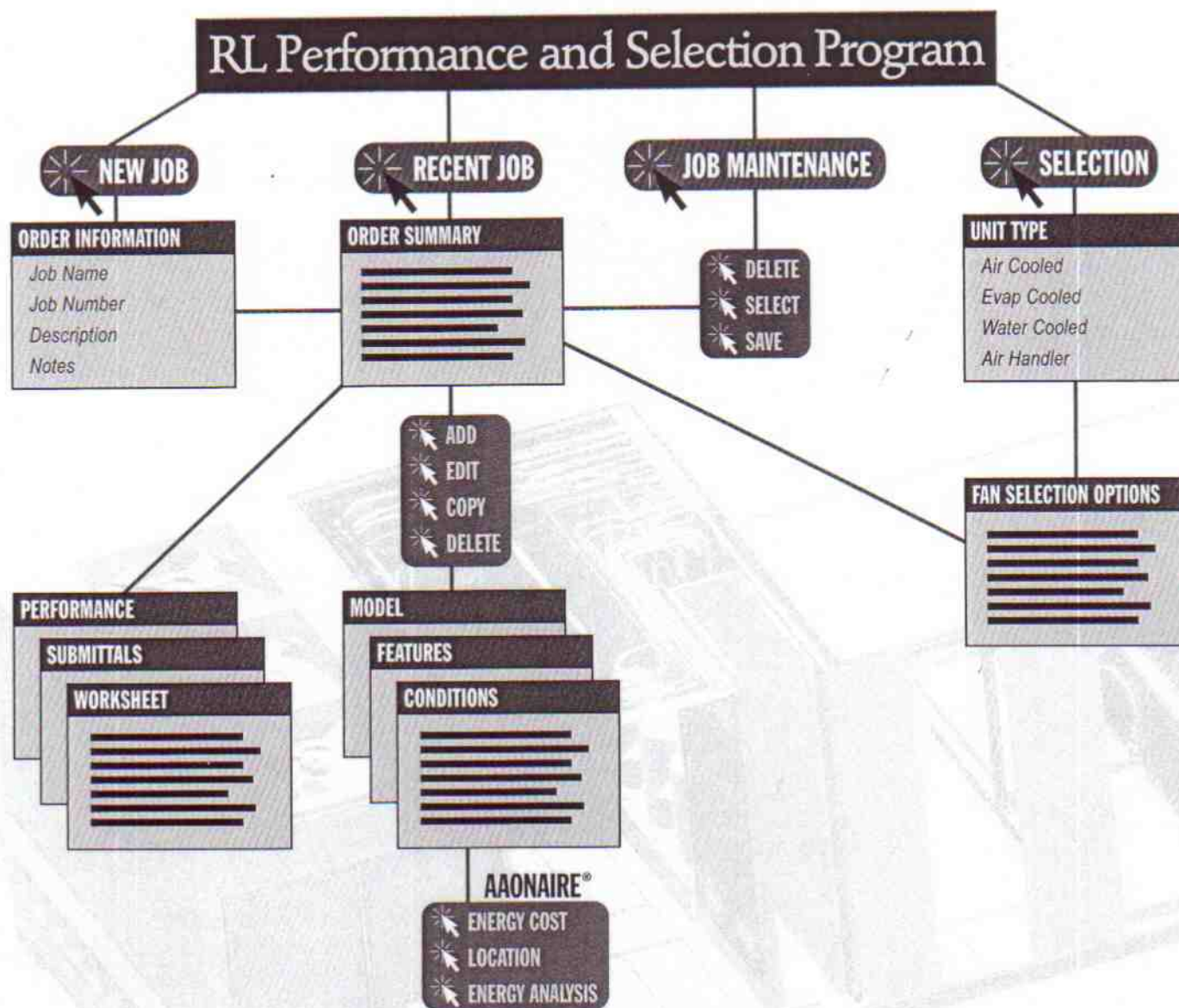
## Thermal and Mechanical Design at Your Fingertips.

AAON makes available a true Windows based program to do all the difficult steps in the product selection. The program works in logical steps for working an actual job. Data is saved on a job name basis and can be recalled

for additions, deletions or revisions to the features of each item as the job passes through its natural phases of design and development. The user will save considerable time when individual units are similar since

each can be copied and modified.

The printed outputs include performance ratings, as well as, the mechanical dimensional information on each unit selection that can be used for submittal purposes.



### RL SERIES COOLING AND AIRFLOW PERFORMANCE DATA

RL Unit Size	RL Models	Air Cooled Capacity-Tons	Evaporative & Water Cooled Capacity-Tons	Air Flow CFM	Internal Dimensions Height (in) Width (in)	
A	045, 060, 070	40 to 63	43 to 69	8,900 to 30,000	94	96
B	075, 095	65 to 88	71 to 94	10,500 to 32,000	94	96
C	100, 110, 125, 135	90 to 125	96 to 135	15,500 to 43,100	94	96
D	134, 155, 170	117 to 161	124 to 171	17,600 to 56,700	94	138
E	190, 210, 230	168 to 213	180 to 228	24,750 to 75,500	94	138

**Note:** All units are also available as air handlers.



## Fan Selection Options to Meet Your Airflow and Sound Requirements.

The RL product can be configured as either a draw-through or blow-through arrangement with supply or return fans. The supply blower assemblies are direct drive, unhooded, single inlet, single width, air foil plenum fans with spring isolation.

The AAON ECat – Fan selection software easily permits a selection for constant speed or variable speed applications. The software determines the most efficient alternatives for the application as a function of fan quantity, fan diameter, fan blade width and rpm.

Inlet and outlet sound ratings are provided for each combination of fans and unit inlet and outlet sound ratings are determined for the overall unit configuration. Multiple fans provide improved reliability, greater efficiency, lower sound levels, and greater service options.

### SUPPLY FAN QUANTITY

RL Unit Size	Fan Size							
	245	270	300	330	365	425	445	490
A, B, C	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1 or 2	1	1	1
D, E	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1 or 2	1 or 2	1 or 2	1 or 2

### RETURN OR EXHAUST FAN QUANTITY

RL Unit Size	Fan Size		
	36"	42"	48"
A, B, C	1 or 2	1 or 2	1
D, E	1 or 2	1 or 2	1 or 2

**Gas Heating.** The gas heating option is also another unique AAON all stainless steel design built for long life and dependability. No internal turbulators are used which can cause operational problems and reduced capacity and efficiency at a later date. Up to 16 individual burners can be provided with a total input greater than 4000 MBH. Each burner can also be provided with 2 stage gas control valves.

**Electric Heating.** Electric resistance heating coils are the open type with low watt density nickel chromium elements. The heating assemblies are installed in 40 KW modules with each having its own circuit fusing and a manually reset high temperature limit switch.

**Hot Water Heating.** Hot water coils are made with 1/2 inch seamless copper tubes that have been mechanically expanded into the aluminum fins. The tube sheets are of 16 gauge galvanized steel with extruded holes for the copper tubing. All headers are of heavy wall copper tubing with spun or die formed ends.

**Steam Distributing Tube Heating.** The steam distributing tube coils are made with 5/8 inch seamless copper tubes that have been mechanically expanded into the aluminum fins. A smaller internal tube distributes the steam to the entire length of the outer tube to maximize freeze protection. The tube sheets are of 16 gauge galvanized steel with extruded holes for the copper tubing. All headers are of heavy wall copper tubing with spun or die formed ends.

### Chilled Water Cooling Coils.

Chilled water coils are made with 1/2 inch seamless copper tubes that have been mechanically expanded into the aluminum fins. The tube sheets are of 16 gauge galvanized steel with extruded holes for the copper tubing. All headers are of heavy wall copper tubing with spun or die formed ends. Coil assemblies are available in 4, 6 or 8 rows deep in two different face areas for each cabinet size.

**Hot Water or Steam Preheat Coils.** If the job application conditions require, coils can be supplied to precondition the outside air. The hot water coils

are of 1/2 inch copper tube construction. The steam coils are of 5/8 inch copper tube with the distributing tube design. One or two row coils can be furnished to meet the capacity requirements.

**Flexibility.** The wide range of unit sizes, capacities, airflow rates, as well as, the standard design features and the many available options make the RL Series the wise selection.

**A Trend Setting Design.** In the past when greater airflows were required, the diameter of the single plenum fan was simply increased to meet the requirement. This results in higher tip speeds, which also means higher sound levels. With the AAON RL Series, the greater airflow rates can be accomplished with multiple fans of smaller diameter, which inherently will be quieter than a single larger diameter fan. All the fans are also directly driven by the motor, which eliminates the drive belt assembly and associated requirement for maintenance. The entire assembly is then spring mounted to further enhance the vibration isolation and reduce sound transmission.





*The Name To Remember.*

AAON, Inc. • 2425 South Yukon Avenue • Tulsa, OK 74107 • 918-583-2266 • Fax 918-583-6094 • [www.aaon.com](http://www.aaon.com)

## **Commitment to Quality. Dedication to Customer Satisfaction.**



### **Imitated But Not Duplicated.**

Since 1988, the objective of AAON has been to design and manufacture only the highest quality heating and cooling products that not only perform beyond all expectations, but demonstrate their value each and every day to the user. Today the AAON RK Series has established itself as the premier vertical discharge rooftop conditioner from 2 to 60 tons.

### **Engineering Excellence.**

The AAONAIRE® energy recovery wheel contained in the RK or RL Series rooftop conditioners can recycle your energy dollars and reduce the cost of heating and cooling. It transfers a portion of the heating and cooling capacity being exhausted from the building to the air being brought into the building. The combination can increase the effective capacity of a 50 ton unit to the equivalent of a 60 or 70 ton unit with a minimal increase in energy consumption.

This increased capacity and energy efficiency holds true with all unit sizes from 2 to 230 tons, when selected with the AAONAIRE energy recovery feature.

### **Certified Performance.**

AAON utilizes Airxchange energy recovery wheels to achieve state of the art reliability and efficiency. Ratings are certified in accordance with the Air Conditioning and Refrigeration Institute Air-to-Air Energy Ventilation Equipment Certification Program, which is based on ARI Standard 1060-2000.

**Call Us.** Take Advantage of a proven source of rooftop products with a dedication to quality and customer satisfaction. Call your local AAON Sales Representative today.